CONTACTLESS PAYMENTS IN THE ERA OF COVID-19: BEHAVIORAL INTENTIONS TO USE QR CODE PAYMENT IN BAGMATI STATE

BY

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RECOMMENDATION

CERTIFICATION

DECLARATION OF AUTHENTICITY

I, Srijan Lamichhane, declare that this GRP is my own original work and that it had fully and specifically acknowledged wherever adapted from other sources. I also understand that if at any time it is shown that I have significantly misinterpreted material presented to SOMTU, any credits awarded to me on the basis of that material may be revoked.

Signature: _____

Name: Srijan Lamichhane

Date: August, 2022

ACKNOWLEDGMENTS

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ABBREVIATIONS

AMOS	Analysis of a Moment Structures
BI	Behavioral Intention
CB-SEM	Covariance Based Structural Equation Modeling
ECM	Expectation Confirmation Model
EE	Effort Expectancy
ERP	Enterprise Resource Planning
FC	Facilitating Condition
HBM	Health Belief Model
LV	Latent Variable
M-payment	Mobile Payment
NFC	Near Field Communication
PE	Performance Expectancy
PEoU	Perceived Ease of Use
PLS SEM	Partial Least Squares Structural Equation Modeling
PS	Perceived Susceptibility
PST	Perceived Severity
QR	Quick Response
SI	Social Influence
SMS	Short Message Service
SPSS	Statistical Package for Social Sciences
SRMR	Standardized Root Mean Square Residual
TAM	Technology Acceptance Model
TCT	Technology Continuance Theory
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
URL	Uniform Resource Locator
UTAUT	Unified Theory of Acceptance and Use of Technology
VIF	Variance inflation factor

EXECUTIVE SUMMARY

The Covid-19 epidemic had an impact on almost every aspect of human life. To meet the pandemic's limits, people had to adopt new habits in their daily routines. Several studies have looked at the factors that influence consumers' intentions to use payment systems. However, few studies have looked into the factors that may affect customers' intentions to use QR payments. As a result, the purpose of this study is to fill this huge research gap, especially in the current context of Covid-19.

The objective of this research is to evaluate the factors influencing behavioral intentions to use QR Code payment. The population of the study constitutes users who have used QR payment services at least once during Covid-19 in Bagmati. This research is based on primary data collection. Questionnaire were distributed on printed form as well as through emails, and social media. This study used convenience sampling method, one of the non-probability sampling technique. Moreover, PLS-SEM has been used to test the significant impact of factor influencing the behavior intention to use QR code payment in Bagmati state and to test the significant mediating impact of performance expectancy on effort expectancy and behavioral intention.

The findings suggests that social influence, performance expectancy, effort expectancy, facilitating condition, and perceived susceptibility have significant positive influence the behavioral intention to use QR code payment. Whereas, perceived severity have no any significant impact on behavior intention to use QR code payment. And, there is also a partial mediating effect of performance expectancy on effort expectancy and behavioral intention. Performance expectancy has the strongest positive influence on behavior intention to use QR code payment.

Since social influence, performance expectancy, effort expectancy, facilitating condition, and perceived susceptibility have positively influence the behavioral intention to use QR code payment; service providers or developers should take in consideration these factors while making, developing or promoting the QR payment. Furthermore, policymakers are recommended to launch campaigns on behaviors that can minimize the risk of contracting the virus. The behaviors should include the use of QR payment.

CHAPTER I
INTRODUCTION

1.1 Background of the Study

Melzner, Heinze, and Fritsch (2014), created a unified framework to analyze the use of smartphone health application by incorporating HBM and UTAUT, and TPB. The UTAUT is a phenomenon for investigating intention of using technology. Venkatesh, Morris, Davis, and Davis (2003) used the TAM model and upgraded it to develop the UTAUT model. The HBM is also used extensively in studies on technology acceptance. Many researchers, including (Melzner et al., 2014), used perceived threat constructs, perceived susceptibility and severity, to investigate technology-based health behavior.

Pretty much every component of human existence was impacted by the Covid-19. To accomplish the pandemic's constraints, ones needed to embrace new ways of behaving in their regular timetable, and these changes could keep going long after the pandemic reaches a conclusion. These actions, according to Carracedoa, Puertas, and Marti (2021), resulted in severe economic imbalances and a slowing of world economic progress. According to Jonker, Cruijsen, Bijlsma, and Bolt (2020), customers' priorities transitioned from conventional payment systems toward contactless payment options as a consequences of the pandemic.

The use of contactless payment is on its all-time high, as it is perceived to stop the transmission of viruses (Zhao & Bacao, 2021). There has been a speculation about a possible connection between handling physical money and Covid-19 infections. Governments are aiming for different options to cash payments like mobile payment and online banking (Nawayseh, 2020). The report published by Nepal Rastra Bank (2022) for the month of mid-June (Jestha) claims that the total number of mobile banking users reached 17, 961,063 and the total number of transaction done through QR was 3,071,843 in mid-April to mid-May (Baishakh) which increased and reached 3,440,573 in mid-May to mid-June (Jestha).

Since the range of payment options is multiplied in past couple of years, the public is therefore not confined in conducting financial transactions with cash or cards (De luna, Cabanillas, Fernandez, & Leiva, 2019). Mobile payment (m-payment) is one of these, a flexible mobile phone service which lets clients to go through monetary transactions using their smartphones. (Chawla & Joshi, 2019).

There are several types of m-payments; however, this study emphasis is on QR codes. According to Lou, Tian, and Koh (2017), QR payment is a non-contact form of payment where a user makes a transaction through QR scan.

QR code is being used by many as a marketing tool. An increasing number of businesses and sales representatives are now using QR codes to commercialize their goods to one's customers. QR codes is gradually being the leading technologies allowing customers to save time by retrieving the information at the tap of their smartphone (Fine & Clark, 2015).

Although, there are several studies on behavior intention to use QR code payment by integrating UTAUT and HBM model in the global context, such study are scarce in the Nepalese context. Intent to use QR payments in Bagmati state is this study's primary focus. The UTAUT and the HBM model provided the variables that were used.

1.2 Problem Statement

Covid-19 had a substantial impact on society's views towards the use of paper money. Study on people's behavior about leaving cash over contactless payment and the chances of its use in the coming days would be helpful. According to Tamang, Bhaskar, and Chatterjee (2021), amid pandemic, a flow in contactless payment and rise in number of newer electronic payment end users were seen in Nepal. A thorough study is required to determine the elements influencing behavioral intentions for using QR payment services throughout the covid-19.

CC and Prathap (2020) argued that the utilization of smart phone for undertaking the transactions is being regarded as a preventative measure. Individual judgments of the pandemic's severity and thoughts about the disease's degree of susceptibility can influence the adoption of preventative health behavior.

UTAUT, on the other hand, is insufficient to explain the intention to use QR-based payments. The intention to use will also be determined by other factors that must be explored. During Covid-19, there is a dearth of study that includes the additional variables in existing UTAUT. As a result, the current study will combine the HBM and UTAUT to investigate this research challenge in the context of covid-19. UTAUT has a high level of predictive power for customer's intentions and behaviors in using technology (Kosim & Legowo, 2021). This research integrated the UTAUT and HBM framework to analyze the behavioral intentions of people to use QR payment.

Few studies have addressed factors influencing consumers' intentions to use mobile payment. However, there are few studies that have examined factors that may influence customer's intentions in using QR payments during the Covid-19 pandemic. The research around this idea is still to be done in the context of our Nepalese market. So, this study holds the essence of fulfilling this huge research gap, especially in the today's context of Covid-19.

The study deals with the following issues:

1. Is the behavioral intentions to use QR Code payment affected by UTAUT factors?
2. Whether the HBM factors impact the behavioral intention to use QR Code payment?
3. Does performance expectancy mediates the relationship between effort expectancy and behavioral intention to use QR Code payment?

1.3 Objectives of the Study

The study broader objective is to assess the factors influencing behavioral intentions for using QR code payment. The specific objectives includes:

Specific objectives

- To measure the impact of UTAUT factors on behavioral intentions to use QR code payment
- To analyze the impact of HBM factors on behavioral intentions to use QR code payment
- To evaluate mediating role of performance expectancy on the relationship between effort expectancy and behavioral intention to use QR code payment

1.4 Research Hypothesis

A change in a person's actions, attitudes, or beliefs as a result of induction by another person or group is referred to as social influence (Kelman & Hamilton, 1989). Guzzo, Ferri and Grifone (2016) explored the factors that influence ecommerce adoption and concluded that social influence impacts e-commerce use and then adoption. Similarly, Abrahão, Moriguchi and Andrade (2016) identified that SI affects behavioral intent to use contactless payment.

Similarly, effort expectancy captures an idea related to PEoU (Lai, 2017). Likewise, effort expectancy is also derived from the classical UTAUT model. Different empirical research have found that effort expectancy influence behavior intention to use mobile payment (Teo, Tan, Ooi, Hew, & Yew, 2015; Tan & Lau, 2016; Ramayah, Siew, Rahman, & Taghizadeh, 2017; Alalwan, Dwivedi, & Rana, 2017).

Furthermore, performance expectancy entails characteristics including effectiveness, time and expense savings, advantage searching, etc several of which are known to entice users for using mobile applications (Hew, Lee, Ooi, & Wei, 2015). Several empirical researches have proven that performance expectancy influence behavioral intentions to use mobile payment (Slade, Dwivedi, Piercy & Williams, 2015; Baptista & Oliveira, 2015; Wu & Lee, 2017; Oliveira, Thomas, Baptista & Campos, 2016).

Similarly, according to Al-Qeisi, Dennis, Alamanos and Jayawardhena (2014), performance expectancy can mediate the impact of effort expectancy and usage intention. When consumers consider technology to have a high effort expectancy (ease of use), they also have a high performance expectancy (Tan & Lau, 2016). According to their findings, increased effort expectancy has a large indirect effect on usage intention via performance expectancy. Furthermore, Shaw and Kesharwani (2019) proposed that effort expectancy influences performance expectancy in a beneficial way. Customers with a high expectation of effort (ease of use) will think about it.

Furthermore, facilitating conditions make technology use easier and have an impact on mobile technology adoption (Nisha, Iqbal, & Rifat, 2019). From the concept of Higgins, Thompson, and Howell (1991) PC utilization, as well as Ajzen (1991) perceived behavioral control and finally Moore and Benbasat (1991) compatibility, Venkatesh et al. (2003) developed the facilitating conditions construct. Behavioral intention to use mobile payment is influenced by the facilitating condition (Nur & Panggabean, 2021; Patil, Tamilmani, Rana, & Raghavan, 2020). People's intention to use m-payment is positively influenced by facilitating conditions, according to (Lin, Lin, & Ding, 2020). According to Teo et al. (2015), infrastructure such as smartphones, 4G services, Internet connectivity, and safe apps are potential motivators for mobile payment adoption.

Finally, Green and Murphy (2014) defines perceived severity as a person's personal judgment of the seriousness of a condition. This assessment is influenced by number of elements, including the particular context and the likelihood of future occurrences. According to, Weinstein (2000), individuals who view a condition as being severe will take proactive steps to protect their health. A person's perception that a particular action might have a detrimental effect on their health is known as perceived susceptibility. The significant effects of perceived severity and susceptibility on the intent and real use of health apps have been supported by numerous studies; (Wei, Vinnikova, Lu, & Xu, 2020; Zhao, Ni, & Zhou, 2018), anti-spyware software (Liang & Xue, 2010), cyber security (Carpenter, Young,

Barrett, & McLeod, 2019). Furthermore, during the Covid-19 pandemic, CC and Prathap (2020) observed a high level of PS and PST with many Indian consumers, in addition to how such factors directly affects the mobile payment adoption. The health concern provided by Covid-19 is likely to influence the intention of using QR payment.

The following Hypothesis is proposed based on the aforementioned review:

H1: Social influence has a significant positive influence on the intention of users to use QR code payment

H2: Effort expectancy has a significant positive influence on the intention of users to use QR code payment

H3: Performance expectancy has a significant positive influence on the intention of users to use QR code payment

H4: Performance expectancy has a positive mediating effect on the relationship between effort expectancy and behavioral intention to use QR code payment

H5: Facilitating condition has a significant positive influence on the intention of users to use QR code payment

H6: Perceived severity of pandemic has a significant positive influence on the intention of users to use QR code payment

H7: Perceived susceptibility has a significant positive influence on the intention of users to use QR code payment

1.5 Scope and Significance

The study focuses on factors affecting behavioral intentions of users to use QR payment services during pandemic along the mediation effect of performance expectancy on effort expectancy and behavior intention. This study has taken the two model UTAUT and HBM. The study has taken performance expectancy, social influence, effort expectancy and facilitaing condition from UTAUT model and Percieved suspecibility and perceived severity of pandemic from HBM model based on the past studies.

The study is significant for banking leaders, technology developers, academic field, and even for the non-users of QR payment. This study is also relevant from an academic standpoint. Concerning the educational point of view, the paper contributes to actual body of knowledge within the Nepalese context, where, to the finest of the researcher's knowledge and

understanding, this sort of study using Structural Equation Model has never been conducted in Nepalese environment, considering the era of Sars-cov-2 pandemic. The study also paves the way for future research in this and related areas.

This study assists banks, service providers, and technological developers in improving their strategy and design in order to increase user intention to use QR code payment. Similarly, by providing information, this study assists non-users in adopting QR payment. Furthermore, government can get useful insights from this study that can be used to promote the QR payment.

1.6 Limitations of the Study

The limitations of this study are:

1. This study cannot be fully generalized as only the samples from bagmati state has been considered.
2. This study has not considered the mediating or moderating role of demographic variables.
3. This study has focused on UTAUT and HBM factors ignoring the impact of other possible factors,
4. Only the limited information was gathered in the study as the study was fully based on the closed ended questionniare.

1.7 Outline/Structure of the Report

This section gives a general description of the study's structure. This study classified into three main sections with five chapters: Preliminary, body of the report and supplementary section.

Preliminary part of the report comprises of title page, certification, and declaration of authenticity, acknowledgment, and table of contents, list of tables and figures, abbreviations used, and executive summary. Similarly, body of the report includes five chapters. Chapter one is related to introduction. This chapter deals with the background of the study. It describes what the study is all about. It further includes introduction, statement of problem, objectives of the study, research hypothesis, and limitations of the study and structure of the report. Whereas chapter second deals with the review of the literature. This chapter comprises of review of related literatures, research gap and theoretical framework. Further third chapter reports the methodologcal aspects. It further includes research design, software used and procedures used for collection and analysis of data, population and sample size and

sources of data. Chapter four concerns with analysis and result. This chapter presents data analysis and the results obtained. It includes; presentation of data, analysis of data, inferential analysis and major findings. MS-Excel, Smart-PLS and SPSS statistical software had been used for the data analysis. Chapter five presents discussions, conclusions and implications of this study. This chapter consists of discussion of the findings, conclusions and its implications. The discussion part includes the integration of theory with that of the findings of the study, investigation of the study and drawing out conclusion and implications. The supplementary section includes two parts; references and appendix.

CHAPTER II
RELEATED LITERATURE AND CONCEPTUAL FRAMEWORK

This chapter presents the review of literature on the behavioral intention of users to use QR code payment. This chapter consists of theoretical review and empirical review. After the empirical review, literature matrix is prepared which summarizes the empirical review. Additionally, research gap is also included in this chapter. And finally this chapter closes with the conceptual framework of the study.

2.1 Theoretical Review

This section presents the different theories that is related to the study. TRA, UTAUT, TAM, TPB, HBM and different contextual review related to QR payment.

2.1.1 Mobile Payment

Adoption of mobile to accomplish an online transaction is defined as mobile payment (Cabanilla, Fernández, & Leiva, 2014). Customers can purchase things via contactless payments without having to carry a purse (Mallat, 2007).The three main types of mobile payment tools are QR, NFC and SMS. According to Fischer (2009) Mobile phones basically transform into magic wands thanks to NFC, a technology that enables users to accomplish purchases simply moving their phones over terminal.

2.1.2 QR (Quick Response) Code Payment

In Asian countries, QR-code payment is widely accepted (Lou, Tian, & Koh, 2017). QR code scanning as a method of payment originated in Japan and has since expanded throughout the world. Since the 2000s, QR codes have surged in popularity in Europe and North America, with marketers and manufacturers placing them in a wide range of products and services, from wine labels to soap bottles and candy packages (Okazaki, Li, & Hirose, 2012). As defined by Lou et al. (2017), cashless payment method where QR code is read using a cell phone to complete a transaction known as QR code payment.

According to Hossain, Zhou and Rahman (2018), Denso Wave devised QR codes in 1994 as machine-readable grid bar codes for sake of precisely and quickly checking inventories. While traditional bar codes could only store data horizontally, however QR codes can store data both vertically and horizontally. As a result, QR codes can store more precise and large amounts of data than traditional one-dimensional bar codes. QR codes can be decrypted by any smartphones and QR scanners. This lets web addresses to be encrypted in QR codes,

which allows the scanning device to directly move to the defined URL in browser. Unlike barcodes, QR code includes an error-checking sections.

The use of QR codes for information and payment methods has increased rapidly in recent years, with many businesses accepting it (De Luna et al., 2019). The QR code technology is available on both Android and iOS phones, and its popularity is growing by the day. According to Lou et al. (2017) the payment mechanism improves efficiency and consumer satisfaction by allowing transactions to be completed quickly.

2.1.3 Theory of Reasoned Action (TRA)

There are several technological adoption theoretical models such as TPB, TRA, TAM and UTAUT. The model TAM and UTAUT are most used model for studying the technological adoption (Chhonker, Verma, Kar, & Grover, 2018; Slade et al., 2015).

Azjen and Fishbein (1975) proposed TRA model. According to the TRA, people's behavioral intentions determine what they do, which are dependent on two factors: their own attitudes about the behavior and perceived social pressure from those they wish to please.

2.1.4 Theory of Planned Behavior (TPB)

TPB is a further development of TRA (Ajzen & Fishbein, 1975; Ajzen & Fishbein, 1980). In the process of developing TPB, Ajzen (1991) added a perceived behavioral control variable that was absent from TRA. According to Ajzen (1991) the theory's first construct is behavioral intention, which refers to the inducement part that influence behavior. A given behavior is more likely to be carried out if there is stronger intention to take part in particular behavior. Individual intentions are determined by subjective norms, personal attitudes, and perceived behavioral control, according to TPB. TPB model is used in intention of users to use technology (Teo & Lee, 2010) and also in health psychology related to smoking and drinking (Hagger, Lonsdale, & Chatzisarantis, 2011).

2.1.5 Technology Acceptance Model (TAM)

Davis (1989) developed a TAM, a widely accepted model. TAM model is developed by refining or modifying theory of reasoned action (TRA) (Ajzen & Fishbein, 1975). The two factors that are employed to explain the reason to use technology are perceived convenience of use and usefulness. Many researchers have used TAM model to study the contactless less payment either by extending the model or by extending its constructs to better understand the adoption of mobile payments (Cocosila & Trabelsi, 2016; Wang & Lin, 2019). Wang & Lin (2019) examined the intention to adopt contactless cards by introducing constructs such

as risks, innovativeness, and trust along with TAM. Also, Venkatesh and Davis (2000) further refined the TAM to reflect usage intentions in context of emotional instrumental activity and social influence.

TAM have been criticized by many researcher. Benbasat and Barki (2007) criticized TAM model for diverting researcher's focus elsewhere from additional research problems and constructing a mirage that knowledge was being accumulated. They also note that TAM model has led to theoretical chaos and confusion among researcher as it is not clear which versions of different iteration TAM model is generally accepted one.

2.1.6 Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh et al. (2003) put forward UTAUT as an augmentation to TAM, gathering theoretical likenesses and contrasts between eight models. TPB, TAM, joined TAM and TPB, TRA, innovation diffusion theory, social cognitive theory, and PC use and motivational are among the eight models. The UTAUT model, Venkatesh et al. (2003), aims to describe user perception and acceptance behavior. This model has been used in a variety of sectors, including health (Schaper & Pervan, 2007), Enterprise Resource Planning (ERP) (Chauhan & Jaiswal, 2016), tele-health (Napitupulu, Yacub, & Putra, 2021), and so on.

According to Venkatesh et al. (2003), UTAUT identifies four primary drivers of behavioral intention and usage, which are moderated by age, gender, voluntariness and experiences of use: performance expectancy, effort expectancy, social influence, and facilitating conditions. 70% measured variable is explained by the UTAUT model (Venkatesh et al., 2003). According to Bhatiasevi (2016), UTAUT is a superior model in predicting the chances of success in newer technologies introduction and variables that influence users' use intention.

2.1.7 Health Belief Model (HBM)

Becker (1974) developed the HBM model to predict the people. According to Glanz et al. (2008) if people think a certain activity may minimize a chance of serious condition, they are more likely to take it. According to HBM, the development of healthy behaviors among the affected population is encouraged by perceived susceptibility, severity, benefits, barriers, and self-efficacy (Becker & Maiman, 1980).

HBM is frequently mentioned in the literature on technology adoption. Using the frameworks of perceived threat (perceived susceptibility and severity), numerous researchers have investigated technology-based health behavior, such as (Melzner et al.,

2014), created a unified framework to analyze the use of smartphone health application by incorporating HBM and UTAUT, and TPB.

2.2 Empirical Review

This section evaluates and presents the previous empirical studies which is published in journal, books, newspaper articles etc. Most of the studies included in this section are of international work as there is a lack of studies available in Nepalese context. The literature is arranged in a chronological order.

Social Influence and Behavioral Intention

Wei, Marthandan, Ye and Ooi (2009) studied the factors that affects consumer intention to use M- commerce in Malaysia by using multiple regression analysis. They took 222 respondents as sample for the study and found that social influence is positively influence the usage intention of consumer in Malaysia.

Govender and Sihlali (2014) examined the factors that influence the student adoption intention of mobile banking. Multiple regression analysis was conducted from the data collected from 77 samples. The study discovered, social influence on IT students does not affect their intention of adopting mobile banking. In the same way study conducted by Alalwan, Dwivedi and Rana (2017) also showed that social influence does not influence the behavioral intention of customer's to use mobile banking.

Kosim and Legowo (2021) conducted research in Indonesia to analyze factors affecting consumer intention on QR code by using modified UTAUT model. Company's customers were the population and 403 samples were taken for the study. Variance based SEM was used for the analysis. The result showed that social influence significantly affect the behavior intention to use QR payment. The study also revealed that performance and effort expectancy both are being moderated by age and have significant impact on behavioral intention to use QR payment.

Suo, Goi, Goi, and Sim (2022) studied the factors influencing behavioral intention to adopt QR- Code payment. For this purpose researcher collected data from 453 samples. It was found that social influence is significantly related with the behavioral intention of users to use QR code payment.

In context of Nepal, Maharjan (2018) explored the behavior intention of citizens of Nepal toward adoption of e-government services. 213 respondents were taken as sample for this

purpose and SEM was used for data analysis. The result showed that there was no any significant impact of social influence on usage intention.

Effort Expectancy and Behavioral Intention

Abrahão et al., (2016) studied consumers' intention towards the adoption of mobile payment system in Brazil. For this study, UTAUT model was used. Structured equation modeling was used to examine data that were gathered from 605 respondents. The findings demonstrated that effort expectancy positively influenced Brazilian usage intention of digital payment system. In this study, 76% of measured variable i.e. behavioral intention is explained by performance expectancy, effort expectancy, social influence and perceived risk.

Alalwan, Dwivedi and Rana (2017) examined the factors influencing the Jordanian customer's behavioral intention and adoption of mobile banking. For this study researcher used UTAUT 2 model and 343 customers as a sample of study. For this study analysis, PLS-SEM has been used. The finding demonstrated that effort expectancy positively influenced Jordanians bank customer's adoption intention of mobile banking.

Commer, Sci, Sair and Danish (2018) studied the factors influencing behavioral intention to adopt mobile commerce. UTAUT model was used to study this research with the sample size of 320 users. The researcher used SEM technique to analyze the data collected. The finding showed that effort expectancy influenced the user's adoption intention of m-commerce.

Leong, Chiek, and Lim (2021) examined the factors influencing the Malaysians usage intention of mobile payment. For this study researcher used modified UTAUT model and 393 customers as a sample of study. AMOS software was used for the analysis of study. The result found that effort expectancy influenced the Malaysians usage intention of mobile payment.

Performance Expectancy and Behavioral Intention

Slade et al. (2015) studied the remote mobile payments adoption in United Kingdom by taking 268 sample. SEM was used to analyze the study. The finding revealed that performance expectancy influenced the UK non-users adoption intention of remote mobile payment. This study have used the UTAUT model with more consumer- related constructs.

Oliveira et al. (2016) investigated the primary factors that can influence the adoption of mobile payment with the purpose to recommend. For this study, UTAUT2 model was used. Structured equation modeling was used to examine data that were gathered from university

students and graduates in Portugal. The findings demonstrated that performance expectancy positively influenced the user's usage intention of mobile payments.

Madan and Yadav (2016) examined the factors affecting intention to use mobile wallet in developing countries. For this purpose researcher conducted a survey on 210 mobile phone users. SEM was used to test the hypothesis. According to the findings, one of the significant factors influencing the intention to use a mobile wallet is performance expectation.

Tan and Lau (2016) used UTAUT model to examine the intention of Generation Y to adopt mobile banking services. The sample size of 347 was considered for the study. Multivariate regression is performed to validate the study's hypothesis. The findings revealed that performance expectations are a significant factor influencing desire to use mobile banking services.

Facilitating Conditions and Behavioral Intention

Gupta, Manrai and Goel (2019) conducted research on the factors influencing behavioral intention to adopt payment bank services in India. To determine the factors that affect consumers' intentions, they used the UTAUT model. Structured equation modeling was used to examine data that were gathered from 660 respondents from field survey in New Delhi. The respondents are under banked or unbanked, small business man and migrant laborers. They discovered that the facilitating condition influence the use of bank payment services.

Yeh and Tseng (2017) conducted research on mobile payment intentions among college students in Taiwan. To determine the factors that affect consumers' intentions, they used the UTAUT2 model. They discovered that the facilitating condition has an impact on the utilization of mobile payment. Hedonic motivation, on the other hand, has a detrimental impact on behavior intentions.

Sivathanu (2019) investigated the actual use of digital payment systems by consumers during India's demonetization. The UTAUT2 model and the Innovation Resistance (IR) hypothesis were employed in this investigation. Structured equation modeling was used to examine data that were gathered from 766 respondents using a pre-tested questionnaire. The results showed that the facilitating condition had a positive influence on behavioral intention to use digital payment system. The researcher proposed that digital payment service providers create tech user-friendly and secure of structural inequalities, as well as check on security and privacy issues, in order to persuade clients to use digital payment and reduce reliance on cash payments.

Nur and Panggabean (2021) studied generation z adoption intention of mobile payment in Jakarta. For this study, extended UTAUT model was used. Structured equation modeling was used to examine data that were gathered from 100 respondents using a questionnaire. The findings demonstrated that adoption intention to use mobile payment system is significantly influenced by facilitating condition. The researcher also found that performance expectancy, social influences, perceived enjoyment, and trust influence adoption intention. Whereas adoption intention is not influenced by effort expectancy.

Perceived Susceptibility and Behavioral Intention

Puriwat and Tripopsakul (2021) integrated Expectation confirmation and HBM model, during covid-19, to assess Thailand user's adoption and continuance intentions of using contactless payment. The sample size for the study is 142 and SEM was used to empirically validate the model. The study found that perceived susceptibility significantly affect the intention to use contactless payment. The study also revealed that effect of perceived susceptibility was relatively higher.

Daragmeh, Sagi and Zeman (2021) integrated HBM and TCT, during covid-19 outbreak, investigate the continuing intention to utilize an e-wallet. This study collected data from 1080 respondents from three different Hungarian universities. SEM was applied in the study. The result showed that HBM constructs perceived susceptibility to pandemic significantly influenced the adoption intention of e-payment.

CC and Prathap (2020) studied the continuance adoption of mobile payment in covid-19. The researchers integrated HBM and ECM model. This study collected data from 654 respondents. SEM was applied in the study. The result showed that HBM constructs perceived susceptibility significantly influenced the adoption intention of m-payment.

Perceived Severity and Behavioral Intention

CC and Prathap (2020) studied the continuance adoption of mobile payment in covid-19. The researchers integrated HBM and ECM model. This study collected data from 654 respondents. SEM was applied in the study. The result showed that HBM constructs perceived severity significantly influenced the adoption intention of m-payment.

Puriwat and Tripopsakul (2021) integrated expectation confirmation and HBM model, during covid-19, to assess Thailand user's adoption and continuance intentions of using contactless payment. The sample size for the study is 142 and SEM was used to empirically validate the model. The result showed that HBM constructs perceived severity significantly

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Daragmeh et al. (2021) integrated HBM and TCT, during covid-19 pandemic, to assess Hungarian continuous usage intention of e-wallet. This study collected data from 1080 respondents from three different Hungarian universities. SEM was applied in the study. The result showed that HBM constructs perceived severity to covid-19 significantly influenced the adoption intention of e-payment.

Upadhyay, Upadhyay, Abed and Dwivedi (2022) assess the variables influencing behavior intention and also use behavior for mobile payment services, an upgraded meta-UTAUT approach incorporating perceived severity and self-efficacy. The study collected data from 411 respondents. To validate the study's hypothesis, PLS-SEM is used. The result showed that HBM constructs perceived severity significantly and positively influenced the behavioral intention.

Mediating Role of Performance Expectancy

Tan and Lau (2016) highlighted generation Y's intentions to use mobile banking services using the UTAUT model. The study collected data from 347 respondents. The study's hypothesis is tested using multiple regression. The findings demonstrated that performance expectancy partially mediates the association between effort expectancy and intention to use.

Tang, Aik and Choong (2021) used UTAUT model and added two extra variables to examine the usage intention of Malaysian to use m-payment. The sample size of 393 was considered for the study. SEM analysis was used to verify the hypothesis of the study. The results demonstrate that performance expectancy partially mediates the association between effort expectancy and behavioral usage intention.

Table 1

Literature Review Matrix

Authors	Variables	Methodology	Findings
Wei et al. (2009)	Perceived usefulness, ease of use, social influence, perceived cost, trust and intention to use	Correlation and multiple regression analysis	Perceived usefulness, social influence, perceived cost and trust positively influenced the usage intention of m-commerce. And perceived ease of use as well as trust have insignificant effect on intention to use.
Govender and sihlali (2014)	Perceived value, perceived ease of use, trust, perceived ease of adoption, social influence, actual usage behavior, and behavioral intention (use)	Multiple regression analysis	Perceived value and trust are the strong predictors that influence IT student intention to use m-banking. In addition, social influence as well as perceived ease of use doesn't influence the IT student intention to use m-banking.

(Continued)

Table 1 (Continued)

Literature Review Matrix

Authors	Variables	Methodology	Findings
Slade et al. (2015)	Performance expectancy, effort expectancy, social influence, perceived risk, innovativeness , and behavioral intention	Structural equation modeling	Non-users behavioral intention to adopt remote mobile payment is significantly influenced by performance expectancy, social influence, perceived risk, and innovativeness whereas effort expectancy do not influence the non-users behavioral intention.
Abrahão et al., (2016)	Performance expectancy, effort expectancy, social influence, perceived risk, perceived cost, and behavioral intention	Partial least square for structure equation modeling (PLS-SEM)	Behavioral intention to use mobile payment system was positively influenced by social influence, effort expectancy, performance expectancy. Perceived risk shoed the negative relationship with behavioral intention to adopt mobile payment
Oliveira et al. (2016)	Compatibility, price value, innovativeness, PE, EE, SI, FC, hedonic motivation, perceived technology security , behavioral adoption and recommendation intention,	structured equation modeling	There is impact on m-payment adoption and recommendation intention by compatibility, perceived technology security, performance expectations, innovativeness, and social influence.

(Continued)

Table 1 (Continued)

Literature Review Matrix

Authors	Variables	Methodology	Findings
Madan and Yadav (2016)	Performance expectancy, effort expectancy, social influence, facilitating condition, perceived risk, perceived value, perceived regulatory support, promotional benefits, behavioral intention	Structural equation modeling	The behavioral intentions to adopt mobile wallet are highly influenced by performance expectancy, social influence, facilitating conditions, perceived risk, perceived value, perceived regulatory support, and promotional benefits. However, effort expectation has little impact on the behavioral intention.
Yeh and Tseng (2017)	Performance expectancy, effort expectancy, social influence, habit, hedonic motivation, facilitating conditions, and behavioral intention	Structural equation modeling	The behavioral intention to use mobile payment in Taiwan is considerably and positively impacted by performance expectancy, facilitating conditions, and habit. Similarly, hedonic motivation negatively impact behavioral intention. But, social influence and effort expectancy doesn't influence the behavioral intention.

Table 1 (Continued)

Literature Review Matrix

Authors	Variables	Methodology	Findings
Alalwan et al. (2017)	Performance expectancy, effort expectancy, social influence, price value, trust, hedonic motivation, and behavioral intention	Partial least square for structure equation modeling (PLS-SEM)	The adoption intention to mobile banking is considerably and positively influenced by performance expectancy, effort expectancy, price value, trust, and hedonic motivation. The behavioral intention is unaffected by social influence only.
Commer et al. (2018)	Performance expectancy, effort expectancy, personal innovativeness and behavioral intention	Structural equation modeling (SEM) by AMOS	Performance expectancy and effort expectancy significantly influence the behavior intention to adopt mobile commerce. Also, personal innovativeness mediates the relationship between performance expectancy and behavioral intention, and effort expectancy and behavioral intention.
Gupta et al. (2019)	Performance expectancy, effort expectancy, facilitating conditions, social influence, perceived credibility and behavioral intention	Structured equation modeling (SEM) technique	Significant behavioral intention is influenced by performance expectancy, effort expectancy, facilitating conditions, social influence, and perceived credibility.

(Continued)

Table 1 (Continued)

Literature Review Matrix

Authors	Variables	Methodology	Findings
CC and Prathap (2020)	Perceived severity, perceived susceptiblity, perceived self-efficacy, expectation confirmation, perceived usefulness, satisfaction, continuance intention, continuance behavior	structural equation modeling and serial mediation analysis	Perceived severity, perceived susceptibility and self-efficacy significantly influenced adoption/confirmation of mobile-based payment services. The continuance intention was significantly predicted by perceived usefulness and perceived satisfaction.
Kosim and Legowo (2021)	Performance expectancy, effort expectancy, social influence, facilitating condition, perceived risk, perceived trust, perceived regulatory support, promotional benefits, behavioral intention	Partial least square for Structure equation modeling (PLS-SEM)	The following factors significantly influence behavioral intentions: business expectations, social influence, perceived trust, perceived risk, and perceptions of regulatory support, promotion benefits, age-moderated performance expectations, and effort expectations.
Leong et al. (2021)	Convenience, trust, effort expectancy ,performance expectancy, social influence, usage intention		Intent of Malaysians to use m-payments is significantly influenced by aspects including convenience, trust, effort expectancy, and performance expectancy.

(Continued)

Table 1 (Continued)

Literature Review Matrix

Authors	Variables	Methodology	Findings
Puriwat and Tripopsakul (2021)	Perceived usefulness, perceived susceptibility, perceived seriousness, satisfaction, confirmation and continuance usage intention	Structural equation modeling	Continuance usage intention of contactless payment technologies is significantly influenced by perceived usefulness, perceived susceptibility, perceived seriousness, and satisfaction.
Nur and Panggabean (2021)	Effort expectancy, social influences, facilitating conditions, trust, perceived enjoyment, performance expectancy, behavioral intention	Structural equation model	The behavioral usage intention for mobile payments to complete online transactions is highly influenced by performance expectancy, social influences, facilitating conditions, perceived enjoyment, and trust.
Tang et al. (2021)	Trust, convenience, effort expectancy, performance expectancy, social influence, usage intention	Structural equation modeling	Performance expectancy partially mediates the relationship between effort expectancy and behavioral intention to use

Table 1 (Continued)

Literature Review Matrix

Authors	Variables	Methodology	Findings
Daragmeh et al. (2021)	Perceived ease of use, perceived usefulness, satisfaction, attitude, perceived severity, perceived susceptibility, self-efficacy, confirmation, continuous intention	Structural equation modelling	Most significant factors impacting intention to continue using were self-efficacy, perceived usefulness, and attitude. Short-term adoption demonstrated reasonably strong performance for perceived severity and susceptibility.
Suo et al. (2022)	performance expectancy, social influence, habit, price value, personal innovativeness, effort expectancy, facilitating conditions, hedonic motivation, and behavioral intention	Structural Equation Modeling (SEM)	The behavioral adoption intention of QR-code mobile payment is considerably influenced by performance expectancy, social influence, habit, price value, and individual specific information for technology innovation.
Upadhyay et al. (2022)	Perceived severity, self-efficacy, attitude performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioral intentions	Structural equation modeling	Consumer attitudes are significantly influenced by performance expectancy, effort expectancy, and perceived severity. Consumer attitudes toward intention for adopting mobile payment have a strong and positive influence on behavioral intention.

From the review of empirical studies, it is noted that behavior intention has been examined by using different models. Most of the studies has applied PLS- SEM data analysis method. And there is increasing trend of studying the behavioral intention of people to use technology after the recent pandemic of covid-19. Only few studies have integrated health related factors on their study.

Furthermore there seems to be dearth studies in Nepalese context integrating the two model. Most of the studies available have studied the intention of use only from one model. There are lack of studies which have considered HBM model. Furthermore, there seems to be dearth of adequate research that have considered performance expectancy as mediating variable in context of Nepal.

2.3 Research Gap
Some of the literature gaps identified after going through extensive literature review are:
1. There is quite a limited amount of literature and research in Nepal.
2. Contribution of health behavior factors has not received adequate research attention in Nepal.
3. While there is few studies conducted using UTAUT model whereas there is dearth of studies which have considered performance expectancy as mediating variable.

2.4 Conceptual Framework
Figure 1 is the framework for this study. The independent variable for the study are divided in two section; UTAUT model which includes social influence, effort expectancy, performance expectancy, and facilitating condition and another is HBM model which includes perceived severity and perceived susceptibility. The dependent variable is behavioral intention. The ultimate objective of the research is figuring out factors influencing behavioral usage intention of QR payment amid the pandemic. Perceived suspectibility and perceived severity are the constructs used by researchers to study technology-based health behavior as this construct helps to explain the factors affecting the use of mobile applications.

The following conceptual framework is proposed on the basis of above empirical and theoretical findings:

Figure 1

Conceptual Framework

Independent Variable   Dependent Variables

```
                 ┌──────────────────────────┐
        ┌─────┐  │  Social influence        │──────┐
        │     │  ├──────────────────────────┤       \
        │     │  │  Effort expectancy       │──────┐ \
        │     │  └───────────┬──────────────┘       \ \
        │UTAUT│              ↓                        \ \    ┌──────────────┐
        │     │  ┌──────────────────────────┐          \─────│              │
        │     │  │  Performance expectancy  │──────────────→ │  Behavioral  │
        │     │  ├──────────────────────────┤          /─────│  Intention   │
        └─────┘  │  Facilitating condition  │─────────/      │              │
        ┌─────┐  ├──────────────────────────┤        /       └──────────────┘
        │ HBM │  │  Perceived severity      │───────/ /
        │     │  ├──────────────────────────┤      / /
        └─────┘  │  Perceived Susceptibility│─────/ /
                 └──────────────────────────┘
```
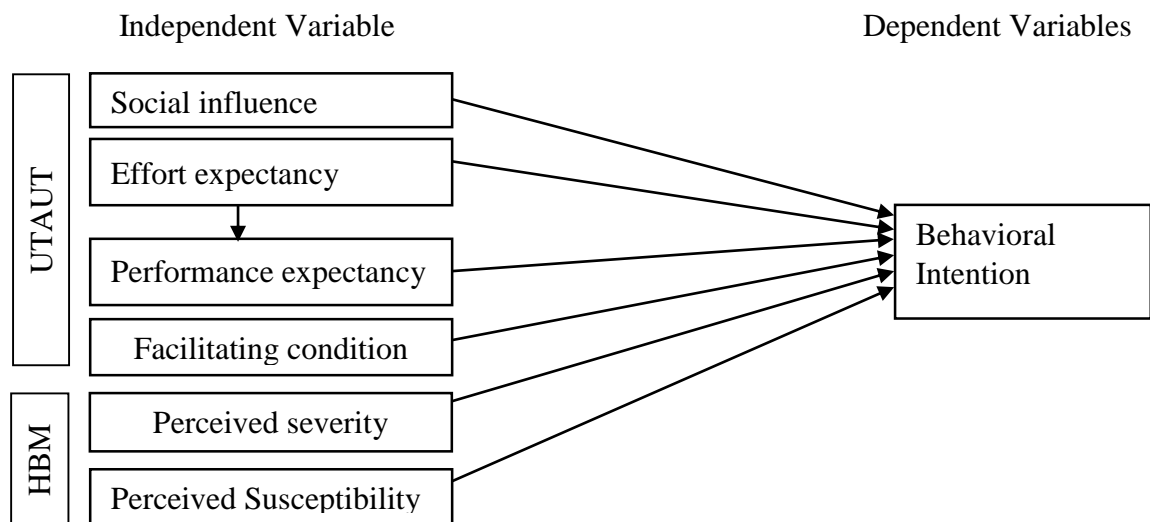
(Source: Melzner et al., 2014; Upadhyay et al., 2022)

2.5 Operational Definition

Performance expectancy (PE)

Venkatesh et al. (2003), described PE as how much an individual accepts that utilizing an innovation will help the person in accomplishing gains in work execution. As indicated by Venkatesh, Thong and Xu (2012) performance expectancy is how much utilizing innovation will help clients while performing various undertakings.

Social influence (SI)

It is how much a person feels that individuals near him accept that he should utilize the new mechanism (Venkatesh et al., 2003). As per Venkatesh et al. (2012) it is the degree by which clients accept that the individuals who make a difference to them (e.g., loved ones) simply assume they ought to utilize an innovation.

Effort expectancy (EE)

According to Venkatesh et al. (2003), effort expectancy is characterized as the level of simplicity related with the utilization of the system. According to Venkatesh et al. (2012) it is the level of convenience with which purchasers use innovation.

Facilitating conditions (FC)

According to Venkatesh et al. (2003), facilitating condition is how much an individual accepts that an organizational and specialized framework exists to help the utilization of the system.

Perceived susceptibility (PS)

Champion (1984) defined it as a person's opinion of their chances of developing a potentially harmful condition.

Perceived severity (PST)

Champion (1984) defined perceived severity is defined as how dangerous the condition and its consequences are according to the individual opinion.

Behavioral intention (BI)

It denotes an individual's reason in the notion of deliberate choice or plan to participate in a specific way of behaving (Conner & Armitage, 1998). According to Ajzen (1991) the deeper the intention, the more probable the activity or behavior will be carried out.

CHAPTER III
RESEARCH METHODS

The methodologies employed to achieve the objectives of this research are covered in this section. The research design, study area, population and sample, sampling strategies, data sources, and instrumentation are basically covered in this chapter.

3.1 Research Design

The nature of this research is quantitative. Researcher has used both a descriptive and a causal relationship research design in the study because it aims to assess the influence of social influence, effort expectancy, facilitating condition, performance expectancy, perceived susceptibility, and perceived severity of pandemic on behavioral intention to use QR payment. The descriptive research is used to study the profile of the respondents and to describe the variables social influence, effort expectancy, facilitating condition, performance expectancy, perceived susceptibility, and perceived severity of pandemic, and behavioral intention. The impact between independent and dependent variables is assessed using a similar causal relationship research methodology.

3.2 Population and Sample

The population of the study constitutes users who have used QR payment services at least once during Covid-19 in Bagmati. The population size is unknown for this study, so Cochran (1977) formula was used to determine the sample size:

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where,

n_o is the required sample size,

p is the estimated proportion of the population which has the attribute in consideration,

q is 1- p,

e is margin of error,

Hence, the minimum sample size for the study is 384.16. However, 386 responses were collected from Bagmati state.

3.3 Sampling Technique

This study used convenience sampling method, one of the non-probability sampling technique. The sampling technique is similar to Upadhyay et al. (2022). The users from Bagmati state who have used QR payment at least once during the time of covid-19 are eligible to be respondents.

3.4 Sources of Data and Data Collection

Primary sources of data was used in this research. The 386 sample of the Bagmati state were given the structure questionnaire, which was constructed. Considering the situation of Covid-19, the questionnaire was developed in Google forms and data was collected by distributing the questionnaire through online medium. The data was also collected in the physical presence of respondents by distributing the printed questionnaire. Questionnaires were also distributed using social media. The data was organized using Ms-Excel and the respondents profile were examined using SPSS and the relationship between independent and dependent variable was evaluated by using Smart PLS.

3.5 Instrumentation

Two sections made up the questionnaire. The respondent's demographic details, including gender, age, education, occupation, and income, was covered by first section. Respondent age (18-25, 26-35, 36-45 and 46-above) was also included. Similarly, questionnaire related to gender (Male, Female and Others), income (Below 20000, 20000-30000, 30001-40000, 40001-50000 and above 50001) and occupation (Student, Employee, Self-employed, House wife, and other) were asked to the respondents. Likewise, respondents education (SEE or below, Intermediate, Bachelor's and Master's and above) and QR payment frequency (Very frequently, Frequently, Occasionally and Rarely) were also included in demographic section. In the aforementioned questionnaire, respondents could only choose one option. But respondents were able to select multiple option to the questionnaire related to purpose of QR payment usage (Utilities bill payment, Fund transfer, Entertainment, Online shopping payment and others) and the modes (Fonepay, Esewa, Khalti, PrabhuPay, ImePay and ConnectIps) users select to use QR payment.

The second section was about seven variables of the study. This section includes the five point likert scale. There are total 30 items in this section. Each of the 30 items in this section is rated on a 5-point scale, with the range being strongly disagree (1) to strongly agree (5).

Table 2

Instrumentation

Questionnaire	References
SI1, SI2, SI3, SI4	Zhao and Baco (2021); Venkatesh et al. (2012)
EE1, EE2, EE3, EE4	Venkatesh et al. (2012)
PE1, PE2, PE3, PE4	Venkatesh et al. (2012)
FC1, FC2, FC3, FC4, FC5	Venkatesh et al. (2012)
PS1, PS2, PS3, PS4	Daragmeh et al. (2021)
PST1, PST2, PST3, PST4	Daragmeh et al. (2021)
BI1, BI2, BI3, BI4, BI5	Tan, Ooi, Chong, and Hew (2014); Venkatesh et al. (2012)

3.6 Data Management and Analysis Tools

Two statistical techniques were used to analyze the data. The study's descriptive analyses and data normality checks are first carried out using the SPSS. Second, SEM analysis was performed by using Smart-PLS software to examine the relationship among the constructs of the research model. Only those data where respondents have responded "Yes" to the question; "During the Covid-19 pandemic, have you ever used QR code Payment?" were only included while analyzing the data.

CB-SEM and PLS-SEM are the two categories into which SEM techniques are divided. CB-SEM is used to test theories, while PLS-SEM is better appropriate to assess the hypothesis of preexisting theories. (Hair, Hult, Ringle, & Sarstedt, 2017). According to (Hair, Hollingsworth, Randolph, & Chong, 2017a), PLS-SEM is used when:

- When there is mediation effect in the structural model PLS-SEM is used as it is superior to regression analysis while evaluating mediation (Hair, Risher, Sarstedt, & Ringle, 2019).
- The data are characterized by a small sample size and non-normal data.
- The models have many constructs and indicators

The two-step PLS-SEM methodology is used in this work. First, the validity and reliability of the measurement model are examined. Next, the structural model is analyzed to test the hypothesized causal relationships.

Measurement Model Analysis

To determine whether the reflective constructs are adequate, a variety of psychometric tests are used. These tests include those for discriminant validity, convergent validity, and construct reliability. (Hair et al., 2017).

The following are the requirements for measurement model while using PLS-SEM

Table 3

Measurement Model Criteria

Measurement	Criterion	Criteria
Internal Consistency	Coefficient Alpha	≥ 0.70 (Hair et al., 2019)
	Composite Reliability (CR)	≥ 0.70 (Hair et al., 2019)
Convergent Validity	Average Variance Extracted (AVE)	≥ 0.5 (Hair et al., 2019)
	Factor Loading	≥ 0.708 (Hair et al., 2019)
Discriminant Validity	HTMT	≥ 0.5 (Hair et al., 2019)

The structural model is examined in order to test the hypothesized causal relationships to the test. At first, VIF was evaluated to check the problem of multi-collinearity. VIF value ensures that multi-collinearity does not influence the regression results. VIF values closer to 3 or less are desired (Hair et al., 2019). After checking VIF, coefficient of determination R Square (R^2) of the structural model was examined. R^2, which varies from 0 to 1, is the percentage of the dependent variable's variance that the independent variable explains. Values closer to 1 imply a high degree of predictive accuracy. (Hair et al., 2019).

(Henseler, Ringle, & Sinkovics, 2009; Hair et al., 2019) discussed R^2 values of 0.75, 0.50, and 0.25, respectively, are judged to be very strong, moderate, and weak. Structural model's path coefficient and path diagram are shown in the final phase. To evaluate structural model and statistical significance of our paths and hypothesis, Bootstrapping algorithm with 10,000 subsamples was used. The strength and direction of the relationship between explanatory and explained variables are measured by path coefficients. (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). The path coefficients are in the range of -1 to +1, with values near +1 suggesting a strong positive link and values around -1 indicating a strong negative relationship between the explanatory and explained variables (Hair et al., 2014).

Expected Outcomes

The expected outcomes of this study were:

Table 4

Expected Outcomes of Hypotheses of the Study

Hypothesis	Statement	Expected Decision	Expected Sign
H_1	Social influence influences the intention of users to use QR code payment.	Support	(+)
H_2	Effort expectancy influences the intention of users to use QR code payment	Support	(+)
H_3	Performance expectancy influences the intention of users to use QR code payment	Support	(+)
H_4	Performance expectancy has significant mediating effect on performance expectancy to use QR payment	Support	(+)
H_5	Facilitating condition influences user's intention to use QR code payment	Support	(+)
H_6	Perceived severity of pandemic influences the intention of users to use QR code payment	Support	(+)
H_7	Perceived susceptibility influences the intention of users to use QR code payment	Support	(+)

CHAPTER IV

ANALYSIS AND RESULTS

The findings from the analysis of the data gathered are presented in this chapter. The results are displayed as frequencies, percentages, and path analyses. The statistical tools utilized to evaluate the gathered data includes Microsoft Excel, IBM SPSS, and PLS-SEM. This chapter includes information on the respondents' demographics, descriptive statistics, and a measurement model, an evaluation of the structural model, a normality test, and the path coefficient.

4.1 Socio-Demographic Profile of the Respondents

The respondents' position is described by their gender, age, level of education, level of income, occupation, & frequency of QR payments in their demographic profile. Table 5 describes the demographic profile of respondents.

The result shows that there are more male users of QR payment as compared to female in Bagmati state. Similarly, more than half of the respondents belong to 18-35 years of age group while respondents from age group of 46 and above were few compared to other age groups. The majority of the respondents fall below 35 years of age group. This shows that the respondents are either young or adult.

Furthermore, the education demographics shows that majority of respondents have qualification of Bachelors or above degree. This exhibits that by far most of responders are literate and have an advanced degree. Similarly, majority of the respondents were students. This shows that many adults in Bagmati state start their career only after achieving college degree.

Based on the frequency of use, majority of the respondents have been using QR payment frequently and only few use it rarely. Majority of respondents have the income level of below 20,000. This is justifiable as majority of the respondents are students.

Table 5

Respondent Profile of the Study

Demographic variables		Frequency	Percent
Gender	Male	250	64.77%
	Female	135	34.97%
	Other	1	0.26%
Age	18-25	193	50.00%
	26-35	172	44.56%
	36-45	15	3.88%
	46 and above	6	1.56%
Monthly Income	Below Rs 20,000	165	42.75%
	Rs 20,000-30,000	95	24.61%
	Rs 30,001-40,001	48	12.44%
	Rs 40,001-50,000	30	7.77%
	Above Rs 50,000	48	12.44%
Level Of Education	SEE or below	3	0.78%
	Intermediate	40	10.36%
	Bachelors	172	44.56%
	Masters or above	171	44.30%
Occupation	Student	186	48.19%
	Employee	132	34.20%
	Self Employed	60	15.54%
	House wife	5	1.30%
	Others	3	0.78%
Use of QR payment	Very frequently	138	35.80%
	Frequently	163	42.20%
	Occasionally	70	18.10%
	Rarely	15	3.90%

Table 6

Modes of Payment

Modes of payment	Responses	Percent
Fonepay	259	67.10%
Esewa	274	70.98%
Khalti	100	25.91%
PrabhuPay	30	7.77%
ImePay	42	10.88%
ConnectIPS	147	38.08%

Table 6 shows majority of the time esewa is selected followed by fonepay. This shows that majority of the respondent's uses esewa for QR payment followed by fonepay in Bagmati state. PrabhuPay is the least used for QR payment purpose.

Table 7

Main Purpose of Using QR

Purpose	Responses	Percent
Utilities Bill Payment	278	72.02%
Fund Transfer	292	75.65%
Entertainment	116	30.05%
Online Shopping Payment	177	45.85%
Others	1	0.26%

Table 7 shows majority of the time fund transfer is selected followed by utilities bill payment. This shows that majority of the respondent's uses QR for fund transfer followed by utilities bill payment in Bagmati state.

4.2 Descriptive Statistics

Highlighting the key features of the data in a study, descriptive statistics are used. The statistical measures employed in this research to measure the descriptive statistics include mean, standard deviation, min and max values of variables.

4.2.1 Descriptive Statistics of Social Influence

Table 8

Descriptive Statistics of Social Influence

Code	Item	N	Min	Max	Mean	S.D
SI1	People who influence my behavior think that I should use QR payment during Covid-19 pandemic.	386	1	5	3.53	1.050
SI2	People whose opinions I value prefer that I use QR payment during Covid-19 pandemic.	386	1	5	3.56	1.056
SI3	People close to me already use QR payment	386	1	5	3.81	1.084
SI4	People who are important to me think it is a good idea to use QR payments during the Covid-19 pandemic	386	1	5	3.81	1.008

Table 8 exhibits the descriptive statistics of social influence. The typical respondents are leaning toward the agree side of the statement about social influence, as seen by the fact that the mean value of every item is higher than 3. All the items have responses ranging from strongly disagree to strongly agree. The highest mean is recorded in SI4 and SI3 i.e. 3.81 indicating highest level of agreement for the statement by average respondents. Likewise, the highest standard deviation is 1.084 from the SI3 statement, indicating the maximum deviation of responses. Whereas, 1.008 is the lowest standard deviation from SI4, indicating minimum deviation of responses.

4.2.2 Descriptive Statistics of Effort Expectancy

Table 9

Descriptive Statistics of Effort Expectancy

Code	Item	N	Min	Max	Mean	S.D
EE1	It is easy for me to become skilful at using QR payment.	386	1	5	4.03	1.033
EE2	I find QR-payment easy to use.	386	1	5	4.18	1.011
EE3	The interaction with QR payment services is clear and understandable	386	1	5	3.99	1.044
EE4	Learning how to use QR payment services is easy.	386	1	5	4.12	1.024

Table 9 exhibits the descriptive statistics of effort expectancy. The typical respondents are leaning toward the agree side of the statement about effort expectancy, as seen by the fact that the mean value of every item is higher than 3. The highest mean is recorded in EE2 i.e. 4.18 indicating highest level of agreement for the statement by average respondents. Likewise, the highest standard deviation is 1.044 from the EE3 statement, indicating the maximum deviation of responses. Whereas, 1.011 is the lowest standard deviation from EE2, indicating minimum deviation of responses.

4.2.3 Descriptive Statistics of Performance Expectancy

Table 10

Descriptive Statistics of Performance Expectancy

Code	Item	N	Min	Max	Mean	S.D
PE1	QR-code mobile payment is useful way of making my payment.	386	1	5	3.99	1.005
PE2	QR-code mobile payment enable me to complete payment more quickly.	386	1	5	4.05	1.063
PE3	QR-code mobile payment make it easier for me to make payment.	386	1	5	4.10	1.022
PE4	QR-code mobile payment is reliable.	386	1	5	3.86	1.097

Table 10 exhibits the descriptive statistics of performance expectancy. The typical respondents are leaning toward the agree side of the statement about performance expectancy, as seen by the fact that the mean value of every item is higher than 3. The items used to collect data for performance expectancy is arranged from strongly disagree to strongly agree. The highest mean is recorded in PE2 i.e. 4.10 indicating highest level of agreement for the statement by average respondents. Likewise, the highest standard deviation is 1.097 from the PE4 statement, indicating the maximum deviation of responses. Whereas, 1.005 is the lowest standard deviation from PE1, indicating minimum deviation of responses.

4.2.4 Descriptive Statistics of Facilitating Condition

Table 11

Descriptive Statistics of Facilitating Condition

Code	Item	N	Min	Max	Mean	S.D
FC1	I have the resources necessary to use QR-code mobile payment (e.g. smartphones, internet services, and secured applications)	386	1	5	3.98	1.117
FC2	I have the knowledge necessary to use QR-code mobile payment.	386	1	5	4.09	0.970
FC3	I can get help from others when I have difficulties using QR-code mobile payment.	386	1	5	3.77	0.996
FC4	QR-code mobile payment is compatible with other technologies I use.	386	1	5	3.88	0.943
FC5	There are online resources to show me how to use QR payment	386	1	5	3.83	1.072

Table 11 exhibits the descriptive statistics of facilitating condition. The typical respondents are leaning toward the agree side of the statement about facilitating condition, as seen by the fact that the mean value of every item is higher than 3. The items used to collect data for facilitating condition is arranged from strongly disagree to strongly agree. The highest mean is recorded in FC2 i.e. 4.09 indicating highest level of agreement for the statement by average respondents. Likewise, the highest standard deviation is 1.117 from the FC1 statement, indicating the maximum deviation of responses. Whereas, 0.943 is the lowest standard deviation from FC4, indicating minimum deviation of responses.

4.2.5 Descriptive Statistics of Perceived Susceptibility

Table 12

Descriptive Statistics of Perceived Susceptiblity

Code	Item	N	Min	Max	Mean	S.D
PS1	There is a possibility to get infected by Covid-19 due to using cash or physical contact payment tools	386	1	5	3.85	1.075
PS2	I would say that I am the type of person who is likely to be infected by Covid-19	386	1	5	3.17	1.213
PS3	I have a strong possibility of being infected by Covid-19 due to my daily habits.	386	1	5	3.19	1.217
PS4	It is most likely that I will be infected by Covid-19 in my lifetime	386	1	5	3.38	1.124

Table 12 exhibits the descriptive statistics of perceived susceptibility. The typical respondents are leaning toward the agree side of the statement about perceived susceptibility, as seen by the fact that the mean value of every item is higher than 3. The items used to collect data for perceived susceptibility is arranged from strongly disagree to strongly agree. The highest mean is recorded in PS1 i.e. 3.85 indicating highest level of agreement for the statement by average respondents. Likewise, the highest standard deviation is 1.217 from the PS3 statement, indicating the maximum deviation of responses. Whereas, 1.075 is the lowest standard deviation from PS1, indicating minimum deviation of responses.

4.2.6 Descriptive Statistics of Perceived Severity of Pandemic

Table 13 exhibits the descriptive statistics of perceived severity. The typical respondents are leaning toward the agree side of the statement about perceived severity of pandemic, as seen by the fact that the mean value of every item is higher than 3. The items used to collect data for perceived severity of pandemic is arranged from strongly disagree to strongly agree. The highest mean is recorded in PST1 i.e. 3.83 indicating highest level of agreement for the statement by average respondents. Likewise, the highest standard deviation is 1.067 from the PST2 statement, indicating the maximum deviation of responses. Whereas, 1.015 is the lowest standard deviation from PST1, indicating minimum deviation of responses.

Table 13

Descriptive Statistics of Perceived Severity of Pandemic

Code	Item	N	Min	Max	Mean	S.D
PST1	The negative impacts of Covid-19 are severe.	386	1	5	3.83	1.015
PST2	Thinking about getting infected by Covid-19 makes me anxious.	386	1	5	3.53	1.067
PST3	Covid-19 has become a serious threat for humankind	386	1	5	3.82	1.029
PST4	It would be severe if I suffered from COVID 19 through physical contact.	386	1	5	3.56	1.046

4.2.7 Descriptive Statistics of Behavioral Intention

Table 14

Descriptive Statistics of Behavioral Intention

Code	Item	N	Min	Max	Mean	S.D
BI1	I intend to increase the use of QR code mobile payment in the future.	386	1	5	4.06	1.094
BI2	I plan to use QR code mobile payment when the opportunities arise.	386	1	5	4.05	1.052
BI3	I would like to use QR code mobile payment for purchasing instead of traditional payment methods. (e.g. Cash)	386	1	5	3.99	1.073
BI4	I plan to use the QR code mobile payment frequently	386	1	5	4.05	1.018
BI5	I will strongly recommend to others to use QR code mobile payment.	386	1	5	4.04	1.037

Table 14 exhibits the descriptive statistics of behavioral intention. The typical respondents are leaning toward the agree side of the statement about behavioral intention, as seen by the fact that the mean value of every item is higher than 3. The items used to collect data for behavioral intention is arranged from strongly disagree to strongly agree. The highest mean is recorded in BI1 i.e. 4.06 indicating highest level of agreement for the statement by average

respondents. Likewise, the highest standard deviation is 1.094 from the BI1 statement, indicating the maximum deviation of responses. Whereas, 1.018 is the lowest standard deviation from BI4, indicating minimum deviation of responses.

4.2.8 Descriptive Statistics of Latent Variables

Table 15

Descriptive Statistics of Latent Variables

LV	N	Min.	Max.	Mean	S.D.	Skewness	Kurtosis
SI	386	1	5	3.679	0.863	-0.987	0.492
EE	386	1	5	4.081	0.889	-1.600	2.370
PE	386	1	5	3.999	0.890	-1.358	1.653
FC	386	1	5	3.910	0.834	-1.323	1.620
PS	386	1.25	5	3.398	0.943	-0.415	-0.614
PST	386	1	5	3.687	0.818	-0.755	0.191
BI	386	1	5	4.038	0.923	-1.331	1.298

Table 15 shows the descriptive statistics of all the variables. The mean value of social influence is 3.679. It indicates that average users of QR code payment slightly tends toward the social influence. The mean value of effort expectancy is 4.081. It indicates that average users of QR code payment tends toward the effort expectancy. The mean value of performance expectancy is 3.999. It indicates that average users of QR code payment have positive attitude toward the performance expectancy. The mean value of facilitating condition is 3.910. It indicates that average users of QR code payment slightly tends toward the facilitating condition. The mean value of perceived susceptibility is 3.398. It indicates that average users of QR code payment have positive attitude toward the perceived susceptibility. The mean value of perceived severity is 3.687. It indicates that average users of QR code payment have positive attitude toward the perceived severity. The mean value of behavioral intention is 4.038. It indicates that average users of QR code payment have positive attitude toward the use of QR code payment in coming days.

Perceived susceptibility has the highest standard deviation i.e. 0.943. It means there is highest variation in responses of perceived susceptibility among other scales. Likewise, perceived severity of pandemic has the lowest standard deviation i.e. 0.818. It means there is low variation in responses of perceived severity among other scales.

Hair et al. (2017) provided general guideline for normal distribution of data; the value of skewness and kurtosis should be between +1 and -1. The data is regarded as non-normal if the value is larger than +1 or lower than -1. Table 15 shows the data are not normally distributed as the value have exceeded the general guidelines. Effort expectancy, performance expectancy, facilitating condition and behavioral intention are the factors that have exceeded the guidelines of skewness and kurtosis.

4.3 Normality Test

Table 16

Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
SI	.175	386	.000	.911	386	.000
EE	.225	386	.000	.819	386	.000
PE	.185	386	.000	.862	386	.000
FC	.193	386	.000	.875	386	.000
PS	.119	386	.000	.960	386	.000
PST	.145	386	.000	.946	386	.000
BI	.209	386	.000	.851	386	.000

a. Lilliefors Significance Correction

Data normality is tested before conducting the further analysis. The significance of different factors are less than 0.05, as shown in Table 16, rejecting the null hypothesis of data normality. Hence variables are not normally distributed. Since the data is not normal, so as suggested by Hair, Sarstedt, Ringle, and Mena (2012) PLS-SEM is used. Hence the use of PLS-SEM is more justified as data is not normal.

4.4 Measurement Model

Outer model are being used by the measurement model for representing the relationship of latent variables and its constructs (Hair et al., 2014). Construct reliability and validity, convergent validity, and discriminant validity are the test conducted for measurement model.

4.4.1 Construct Reliability and Validity

Table 17

Construct Reliability and Validity

Latent Variables	Items	Loadings	Cronbach's Alpha	CR	AVE
Social Influence	SI1	0.782			
	SI2	0.846	0.841	0.893	0.676
	SI3	0.807			
	SI4	0.853			
Effort Expectancy	EE1	0.858			
	EE2	0.868	0.888	0.922	0.748
	EE3	0.865			
	EE4	0.868			
Performance Expectancy	PE1	0.872			
	PE2	0.856	0.873	0.913	0.725
	PE3	0.880			
	PE4	0.794			
Facilitating Condition	FC1	0.844			
	FC2	0.825			
	FC3	0.786	0.876	0.91	0.668
	FC4	0.809			
	FC5	0.821			
Perceived Susceptibility	PS1	0.826			
	PS2	0.786	0.827	0.872	0.631
	PS3	0.766			
	PS4	0.798			
Perceived Severity	PST1	0.772			
	PST2	0.724	0.796	0.866	0.619
	PST3	0.845			
	PST4	0.801			
Behavioral Intention	BI1	0.879			
	BI2	0.854			
	BI3	0.866	0.923	0.942	0.765
	BI4	0.889			
	BI5	0.886			

\Smart-PLS is used as the normality of data is not supported. At first to test the reliability and validity of constructs, internal consistency is measured. Cronbach's alpha is used to calculate this, and composite reliability is also used to determine how strong the internal consistency is. The AVE is used to determine a model's convergent validity (Fornell & Larcker, 1981). The recommended cut-off value for cronbach's alpha is 0.70 but should not

exceed 0.95 (Hair et al., 2014). Similarly, cut off value for composite reliability is also 0.70. (Hair et al., 2014). Table 17 shows that all constructs crossed the cut off value of 0.70 for cronbach's alpha and composite reliability, indicating that construct reliability has been established.

For convergent validity, the researcher analyzes both AVE and outer loading. According to Hair et al. (2014) factor loadings for all items should be higher than 0.5. The factor loading can range from +1 to -1. Similarly, 0.5 is the recommended cut-off value for constructs this is why the value for AVE should exceed cut-off value (Hair et al., 2014). Table 17 shows that every items crossed the cut-off value of 0.7 for loadings. It indicates that the indicator is reliable. Similarly, each construct's AVE is greater than 0.5, indicating convergent validity.

4.4.2 Discriminate Validity

Researcher analyzed discriminant validity so as to make sure the particular constructs in our framework contrasts essentially with the other estimated items. The study's discriminate validity is assessed using cross loading, Fornell-Larcker Criterion, and HTMT ratios.

Cross Loadings

Cross loading is one method for determining discriminant validity. According to Hair et al. (2017a) a construct's outer loading ought to be considerably larger compared to its cross-loadings on corresponding constructs. Table 18 shows that each item has the highest load with its associated construct. Since, all of the construct items scored higher on their respective constructs than others, the discriminant validity has been established.

Table 18

Cross Loadings

	BI	EE	FC	PE	PS	PST	SI
BI1	**0.879**	0.667	0.673	0.647	0.503	0.544	0.535
BI2	**0.854**	0.575	0.588	0.581	0.441	0.437	0.521
BI3	**0.866**	0.604	0.579	0.628	0.442	0.497	0.495
BI4	**0.889**	0.617	0.611	0.682	0.470	0.458	0.512
BI5	**0.886**	0.635	0.664	0.637	0.424	0.479	0.53
EE1	0.574	**0.858**	0.607	0.609	0.389	0.423	0.505
EE2	0.639	**0.868**	0.639	0.638	0.382	0.419	0.493
EE3	0.623	**0.865**	0.637	0.615	0.365	0.415	0.486
EE4	0.614	**0.868**	0.590	0.619	0.336	0.394	0.471
FC1	0.615	0.613	**0.844**	0.658	0.416	0.464	0.469
FC2	0.615	0.572	**0.825**	0.584	0.430	0.454	0.463
FC3	0.520	0.532	**0.786**	0.532	0.405	0.426	0.437
FC4	0.556	0.578	**0.809**	0.558	0.412	0.413	0.439
FC5	0.602	0.621	**0.821**	0.585	0.448	0.552	0.458
PE1	0.647	0.654	0.619	**0.872**	0.390	0.436	0.458
PE2	0.620	0.578	0.591	**0.856**	0.380	0.421	0.433
PE3	0.637	0.642	0.616	**0.880**	0.398	0.491	0.465
PE4	0.567	0.563	0.614	**0.794**	0.433	0.440	0.450
PS1	0.607	0.518	0.563	0.558	**0.826**	0.596	0.487
PS2	0.264	0.193	0.291	0.242	**0.786**	0.394	0.303
PS3	0.264	0.167	0.263	0.179	**0.766**	0.396	0.313
PS4	0.312	0.268	0.357	0.303	**0.798**	0.463	0.367
PST1	0.476	0.412	0.520	0.442	0.497	**0.772**	0.442
PST2	0.328	0.298	0.358	0.342	0.489	**0.724**	0.333
PST3	0.497	0.401	0.479	0.471	0.491	**0.845**	0.418
PST4	0.408	0.373	0.399	0.377	0.469	**0.801**	0.374
SI1	0.407	0.321	0.331	0.378	0.368	0.394	**0.782**
SI2	0.464	0.442	0.424	0.425	0.443	0.424	**0.846**
SI3	0.490	0.498	0.494	0.424	0.399	0.411	**0.807**
SI4	0.567	0.561	0.545	0.50	0.413	0.427	**0.853**

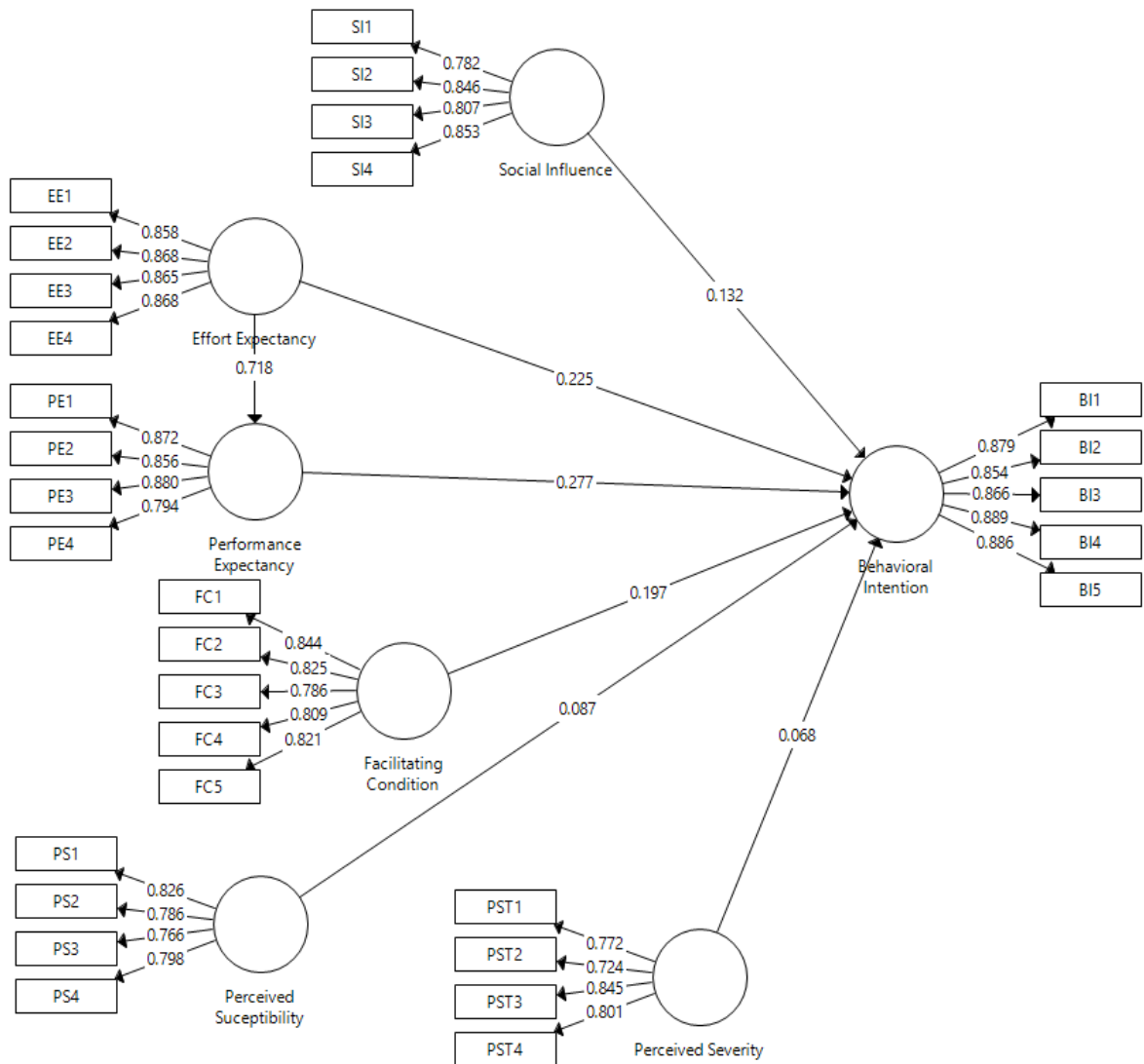**Figure 2**

Measurement Model

Figure 2 conveys measurement model. The path coefficients and outer loadings can be seen in the figure.

HTMT Ratios

The Heterotrait-Monotrait (HTMT) correlation ratio is the average correlations of items measuring across the latent variable relative to the average value of the item correlations of the same variable (Hair et al., 2019). HTMT when crosses 0.9 it is indication of issues in discriminant validity. For structural models with constructs, (Henseler, Ringle, & Sarstedt, 2015) propose a threshold value of 0.90. All of the HTMT ratios in Table 19 are less than 0.90. As a result, discriminant validity has been established.

Table 19

HTMT Ratios

	Original Sample (O)	Sample Mean (M)	CI 5%	CI 95%
EE -> BI	0.781	0.781	0.699	0.852
FC -> BI	0.790	0.789	0.720	0.852
FC -> EE	0.809	0.808	0.725	0.881
PE -> BI	0.808	0.808	0.739	0.869
PE -> EE	0.814	0.813	0.732	0.881
PE -> FC	0.818	0.817	0.744	0.883
PS -> BI	0.510	0.508	0.421	0.591
PS -> EE	0.412	0.410	0.306	0.509
PS -> FC	0.535	0.533	0.443	0.616
PS -> PE	0.467	0.466	0.375	0.553
PST -> BI	0.632	0.630	0.547	0.706
PST -> EE	0.560	0.558	0.450	0.657
PST -> FC	0.666	0.664	0.573	0.746
PST -> PE	0.622	0.620	0.519	0.708
PST -> PS	0.708	0.707	0.633	0.776
SI -> BI	0.664	0.663	0.576	0.743
SI -> EE	0.641	0.639	0.552	0.718
SI -> FC	0.634	0.633	0.534	0.724
SI -> PE	0.613	0.612	0.517	0.701
SI -> PS	0.543	0.543	0.441	0.637
SI -> PST	0.608	0.607	0.506	0.699

Fornell and Larcer Criterion

The Fornell and Larcker criterion is the third technique to measure the discriminant validity. AVE Square root for each latent variables ought to have more correlation than other values among latent variables (Fornell & Larcker, 1981). Bold letters highlighted in the Table 20 represents the square root of AVE. As in Table 20, AVE square root is more than other values among other latent variables. Hence, discriminant validity is established.

Table 20

Fornell and Larcer Criterion

	BI	EE	FC	PE	PS	PST	SI
BI	**0.875**						
EE	0.709	**0.865**					
FC	0.714	0.715	**0.817**				
PE	0.727	0.718	0.716	**0.851**			
PS	0.522	0.425	0.517	0.469	**0.794**		
PST	0.553	0.477	0.566	0.525	0.616	**0.787**	
SI	0.593	0.565	0.555	0.530	0.494	0.504	**0.822**

4.5 Structural Model Assessment

After the assessment of our measurement model, we test our hypothesis and structural model. In structural model assessment first we evaluate the collinearity issues of our study. Only if there is no any issues related to collinearity we move forward and test the hypothesis of our study using path coefficient. The model predictive capability is also evaluated in this section.

4.5.1 Collinearity Test

Collinearity is the situation when there is a correlation between explanatory variables. The presence of collinearity is detected using VIF. According to Hair, Ringle, and Sarstedt (2011), the maximum value of VIF is 5, and if VIF exceeds 5, collinearity exists. The table 21 convey that the VIF values are all under 5, thus there is no collinearity among explanatory variables.

Table 21

Inner VIF

	BI	EE	FC	PE	PS	PST	SI
BI							
EE	2.615			1			
FC	2.772						
PE	2.597						
PS	1.799						
PST	1.947						
SI	1.755						

4.5.2 Model Predictive Capability

R-squared (R^2) is a measure that embodies the percentage variation in dependent variable revealed by all other independent variable in a model (Wright, 1921). The R^2 value obtained using PLS is 0.663. R-square 0.663, indicates that 66.3% of variation of behavior intention to use QR code payment can be explained by social influence, effort expectancy, and performance expectancy, facilitating conditions, perceived susceptibility and perceived severity. The remaining 33.7 percent of intention is accounted for by other factors not explained in the model.

4.5.3 Model Fit

Standardised Root Mean Square Residual (SRMR) is the most common and appropriate criterion used in PLS-SEM path modelling to determine data and model fit (Henseler et al., 2015; Hu & Bentler, 1999). A good model fit is indicated as the SRMR from saturated model's is 0.071 and estimated model is 0.083. SRMR value 0 indicates a perfect model fit, while under 0.08 implies a good fit (Henseler et al., 2015; Hu & Bentler, 1999; Hopper, Coughlan & Mullen, 2008; Reisinger & Mavondo, 2006). Similarly, Kock (2020) considered value less than 0.1 indicates acceptable fit. Hence our model is fit.
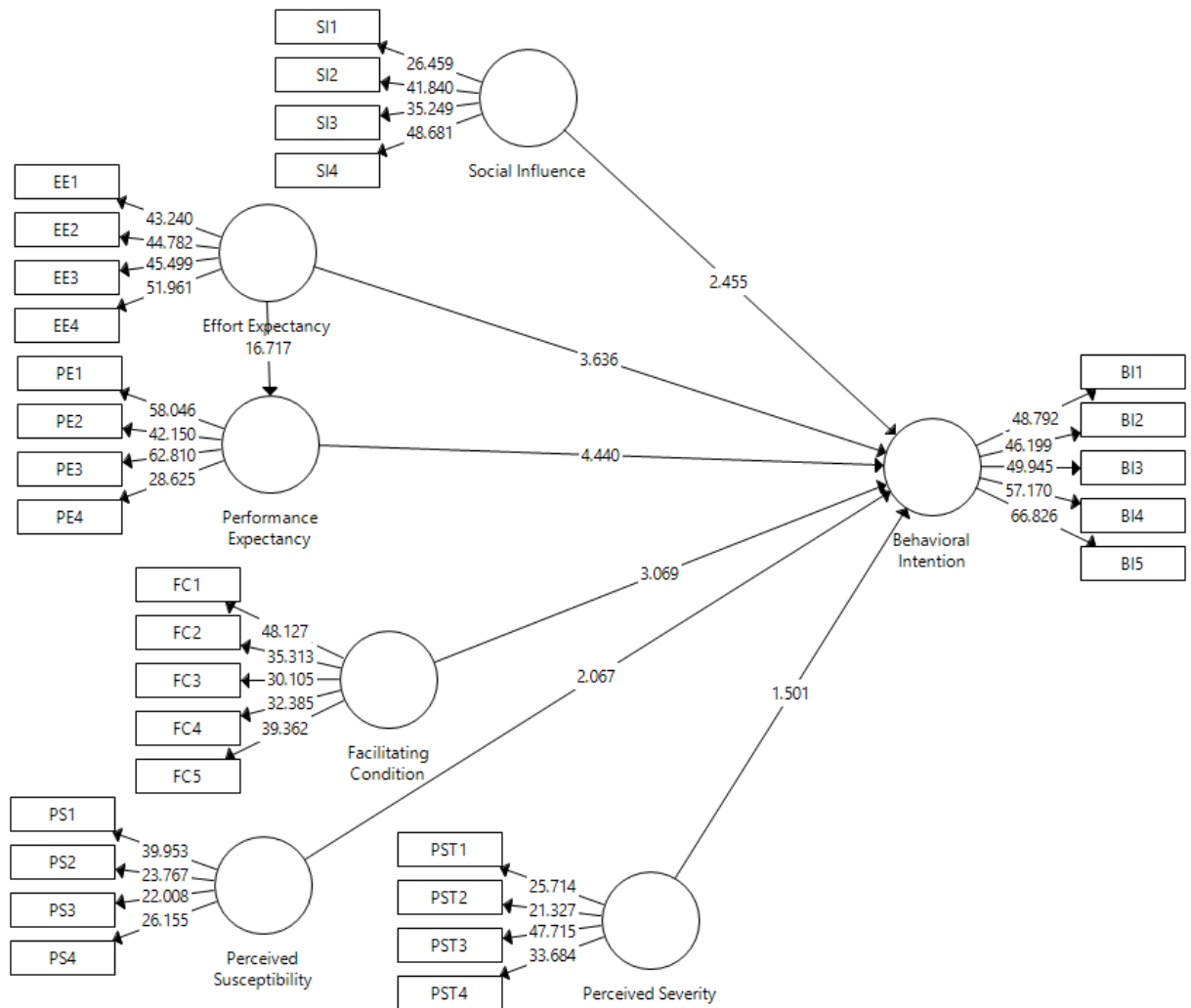
Figure 3

Bootstrapping Diagram

Figure 3 shows the direct effect of social influence, effort expectancy, performance expectancy, facilitating condition, perceived susceptibility and perceived severity on behavioral intention.

4.5.4 Path Coefficient

The final step represents the structural model's path coefficient and path diagram. A bootstrapping procedure with 10,000 samples is used for hypothesis testing for the structural model for this study, using one tailed test. According to Kock (2015) when the path of the hypothesis is specific, i.e. a positive or negative sign is assumed in the hypothesis, one-tailed test is reasonable, and it reduces the chances of type II error. Table 22 shows that six out of seven path coefficient p values are less than 0.05, so all these six paths are significant at 95% confidence interval. But the path coefficient of perceived severity to behavioral intention is insignificant as the p-value is greater than 0.05 and doesn't lies between confidence interval of 5% and 95%. Furthermore, performance expectancy showed the strongest positive influence for user's behavior intention to use QR payment as its beta coefficient is 0.277, followed by effort expectancy, facilitating condition, social influence, and perceived susceptibility, as their beta coefficient is 0.225, 0.197, 0.132 and 0.087 respectively. Performance expectancy is the strongest factor that influence behavioral intentions, indicating that users of QR code payment in Bagmati state believes using QR payment will provide them benefit while performing different tasks or improve their performances.

Table 22

Path Coefficient

	Beta Coefficient	Sample Mean	STDEV	t stat.	p-values	CI 5%	CI 95%
EE -> BI	0.225	0.228	0.062	3.636	0.000	0.130	0.336
EE ->PE	0.718	0.718	0.043	16.717	0.000	0.634	0.778
FC -> BI	0.197	0.193	0.064	3.069	0.001	0.096	0.309
PE -> BI	0.277	0.278	0.062	4.440	0.000	0.180	0.386
PS -> BI	0.087	0.085	0.042	2.067	0.019	0.018	0.157
PST -> BI	0.068	0.068	0.046	1.501	0.067	-0.003	0.145
SI -> BI	0.132	0.135	0.054	2.455	0.007	0.042	0.219

4.5.6 Mediation Analysis

Mediating role of performance expectancy is analyzed by using direct and indirect path. The direct path is used first to test the relationship between effort expectancy and behavioral intention, and the indirect path is used to examine the role of performance expectancy as a mediator.

Table 23

Mediation Analysis

	Beta Coefficient	Sample Mean	STDEV	t stat.	p-values	CI 5%	CI 95%
EE -> PE -> BI	0.199	0.200	0.046	4.290	0.000	0.128	0.282

After this indirect path was drawn as effort expectancy-performance expectancy-behavior intention, to analyze the mediating role of performance expectancy.

When the performance expectancy is taken as mediating variable, it showed partial mediation between relationship of effort expectancy and behavioral intention to use QR code payment ($\beta = 0.199$, $p < 0.05$). As both direct and indirect path between EE and BI ($\beta = 0.225$, $p < 0.05$) and EE, PE and BI respectively are significant.

4.5.7 Hypothesis Testing

Table 24

Summary of Hypothesis Test

Hypothesis	Statement	p-value	Result
H_1	Social influence positively influences the intention of users to use QR code payment.	0.007	Supported
H_2	Effort expectancy positively influences the intention of users to use QR code payment	0.000	Supported
H_3	Performance expectancy positively influences the intention of users to use QR code payment	0.000	Supported
H_4	Performance expectancy has significant positive mediating effect on performance expectancy to use QR payment	0.000	Supported
H_5	Facilitating condition positively influences user's intention to use QR payment	0.001	Supported
H_6	Perceived severity of pandemic positively influences the intention of users to use QR payment	0.067	Supported
H_7	Perceived susceptibility of pandemic positively influences the intention of users to use QR payment	0.019	Supported

The study have seven hypothesis. Table 24 depicts that H1, H2, H3, H4, H5 and H7 hypothesis are supported by this study as there p value is less than 0.05. But H6 is not supported as its p-value is greater than 0.05. Hence, performance expectancy, effort expectancy, social influence, facilitating condition and perceived susceptibility positively impact while perceived severity of pandemic doesn't impact the users intention to use QR payment And performance expectancy partially mediates the association of effort expectancy and intention of users to use QR payment.

4.6 Major Findings

The major findings are:

1. The mean value of social influence is 3.67. It indicates that average users of QR code payment slightly tends toward the social influence.

2. The mean value of effort expectancy is 4.08. It indicates that average users of QR code payment tends toward the effort expectancy.

3. The mean value of performance expectancy is 3.99. It indicates that average users of QR code payment have positive attitude toward the performance expectancy.

4. The mean value of facilitating condition is 3.91. It indicates that average users of QR code payment slightly tends toward the facilitating condition.

5. The mean value of perceived susceptibility is 3.39. It indicates that average users of QR code payment have positive attitude toward the perceived susceptibility.

6. The mean value of perceived severity is 3.68. It indicates that average users of QR code payment have positive attitude toward the perceived severity.

7. The mean value of behavioral intention is 4.03. It indicates that average users of QR code payment have positive attitude toward the use of QR code payment in coming days.

8. Perceived susceptibility has the highest standard deviation i.e. 0.94. It means there is highest variation in responses of perceived susceptibility among other scales. Whereas, perceived severity has the lowest standard deviation i.e. 0.81. It means there is low variation in responses of perceived severity among other scales.

9. Social influence, perceived susceptibility, perceived severity are within the guidelines of skewness and kurtosis. But, effort expectancy, performance expectancy, facilitating condition and behavioral intention are the variables that have exceeded the guidelines of skewness and kurtosis indicating data are not normally distributed.

10. The significance value of all the variables are less than 0.05. Hence the variables are not normally distributed.

11. All measurements that check the reliability and validity meets the required criteria. Hence, all construct are reliable and valid.

12. All of the VIF values are less than 5, as a result there is no collinearity among explanatory variables.

13. Social influence, effort expectancy, facilitating condition, perceived susceptibility and perceived severity has significant positive impact on behavioral intention of users to use QR payment.

14. However, perceived severity of pandemic has no significant impact on behavioral intention of users to use QR code payment as p-value is greater than 0.05.

15. Performance expectancy has the strongest positive influence on behavior intention to use QR code payment as it beta coefficient is 0.277, followed by effort expectancy, facilitating condition, social influence, and perceived susceptibility, as their beta coefficient is 0.225, 0.197, 0.132 and 0.087 respectively.

16. Performance expectancy partially mediates the relationship between effort expectancy and behavioral intention to use.

17. The R-square obtained is 0.663, indicating that 66.3% of total variation in the behavior intention to use QR code payment can be explained by social influence, effort expectancy, performance expectancy, facilitating conditions, perceived susceptibility and perceived severity.

CHAPTER V
DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

5.1 Discussion

The study was conducted by considering the factors from HBM and UTAUT model. The factors included from these model are: social influence, performance expectancy, effort expectancy, facilitating condition, perceived susceptibility and perceived severity of pandemic. The impact of these variables on user's behavioral intention to use QR payment were studied as main purpose. Social influence, performance expectancy, effort expectancy, facilitating condition, and perceived susceptibility were found to have significant positive impact on the behavioral intention of users to use QR code payment. Whereas, perceived severity of pandemic have no any significant impact.

Descriptive findings of the study indicated, there are high number of male users of QR payment in Bagmati state. Likewise, many adults in Bagmati state start their career only after achieving college degree. Similarly, more than half of the users use QR payment frequently in Bagmati state. Moreover, descriptive findings showed that average users of QR code payment slightly tends toward the social influence, effort expectancy, performance expectancy, facilitating conditions, perceived susceptibility, and perceived severity of pandemic.

Empirical findings of the study indicated, there is a significant positive impact of social influence on the behavior intention of users to use QR payment. It indicates that QR users use the QR payment when people who are important to them or who influence their decisions recommend them to use QR payment, also if the people around them have started to use QR payment. The findings of the study is similar to Venkatesh et al. (2012), Wei et al. (2009), Guzzo et al. (2016), Kosim and Legowo (2021) and Suo et al. (2022),

Also, there is a significant positive impact of effort expectancy on the behavior intention of users to use QR payment in Bagmati state. It indicates that if people believe the interaction with QR payment is clear and understandable, easy to use improves their behavior intention to use. The findings of the study is similar to Venkatesh et al. (2012), Abrahão et al. (2016), Alalwan et al. (2017), Commer et al. (2018) and Leong et al. (2021).

Slade et al. (2015), Oliveira et al. (2016) and Rosil et al. (2020), Venkatesh et al. (2012) revealed that performance expectancy significantly impact the intention to use. The current study also revealed that performance expectancy positively influence behavioral intentions

of users to use QR code payment in Bagmati state. It implies that if people believe QR code payment is useful, reliable, easy to make payment and save their time, it improve their behavior intention to use. This study also found performance expectancy as the strongest positive factor that impact the users intention to use QR payment in Bagmati state. This finding is similar to Madan and Yadav (2016) and Tan and Lau (2016).

The mediation analysis was conducted to find out the mediating role of performance expectancy between effort expectancy and behavioral intention to use. The current study revealed that performance expectancy partially mediates the relationship between effort expectancy and behavioral intention of users to use. This finding is similar to Tan and Lau (2016) and Tang et al. (2021).

And, facilitating condition also have a significant positive impact on behavioral intention to use QR code payment in Bagmati state. It implies that people should be provided with all the resources, knowledge and support necessary to use QR code payment to improve their behavioral intention to use. The finding is similar to the study of Venkatesh et al. (2012), Gupta et al. (2019), Yeh and Tseng (2017), Sivathanu (2019) and Nur and Panggabean (2021).

Furthermore, perceived susceptibility also have a significant positive impact on behavioral intention to use QR code payment in Bagmati state. It indicates when a person's have a strong opinion of their chances of developing a covid.19, it increases the intention to use QR code payment to adopt the preventive measure by using contactless technology. The findings is similar to Puriwat and Tripopsakul (2021), Daragmeh et al. (2021) and CC and Prathap (2020).

Furthermore, perceived severity of pandemic have no any significant impact on behavioral intention to use QR code payment in Bagmati state. The condition being dangerous the person have no any impact on intention to use QR code payment. The result contradicts with the result of CC and Prathap (2020), Puriwat and Tripopsakul (2021), Daragmeh et al. (2021), and Upadhyay et al. (2021). They found that perceived severity have a significant impact on behavioral intention to use.

5.2 Conclusions

QR code payment became beneficial during the era of Covid-19. Because of the pandemic, people were advised to reduce the physical contact or stay minimum at a distance of two feet. There was lack of study focusing on QR code payment considering the era of covid-19 in Nepal. Current work examines behavior intention of users to use QR code payment with the integration of UTAUT and HBM model. UTAUT and HBM variable were used to evaluate the behavioral intention to use.

According to study's findings, QR payment is gaining recognition among student and employee i.e youth. Further, study revealed, Esewa and Fonepay is a preferred QR payment provider. The intention to use QR code payment is affected by various factors. The strong influencing factor is performance expectancy.

The study evaluated the behavioral intention to use QR code payment. It showed average users have an intention to use behavior. The findings revealed that social influence have significant positive impact on the behavioral intention of users to use QR code payment. Similarly, effort expectancy also have significant positive influence on the behavioral intention to use QR code payment. Furthermore, performance expectancy significantly and strongly influence the behavior intention to use QR code payment. Additionally, facilitating condition have a significant positive influence on the behavioral intention to use QR code payment. The performance expectancy partially mediates relationship of effort expectancy and behavioral intention to use QR code payment. The two HBM variables were also analyzed to see the impact on behavior intention to use QR code payment. The study found that perceived susceptibility have a significant positive impact on behavior intention to use QR code payment. Whereas, perceived severity of pandemic have no any significant impact on behavior intention to use QR code payment. The model was able to explain 66.3% user's behavior intention. This study provide the thorough understanding of factors that influence behavior intention to use QR payment services in COVID-19 context.

QR payment is expanding in Nepal as peoples are expecting digital way of life to make things easier and faster, and peoples are eager to accept QR and other contactless payments. It is revealed that the majority of the factors that were applicable for explaining intentional behavior even before the pandemic however still hold true during the pandemic.

5.3 Implications

5.3.1 Practical Implications

The study's findings suggested that social influence, effort expectancy, performance expectancy, facilitating condition, and perceived susceptibility all influence behavioral intention to use QR payment. Whereas perceived severity of pandemic have no any significant impact on behavioral intention. This study have implication for banks or service providers, developers and policymakers.

The study found that performance expectancy is the strong factor that have significant positive impact on behavioral intention to use. The QR payment providers should focus on improvement of performance expectancy by providing more features that helps to accomplish the transactions more quickly while using QR. This will help to boost the usage rate of QR code payment. Facilitating is also another factor that influence the behavior intention to use. So the payment provider must ensure the availability of the necessary resources, infrastructures and support (online or offline). The training program needs to develop. Effort expectancy is another important factor affecting intention to use. Hence, the developers should develop user-friendly and flexible application or program which helps the users to use it easily without any mental effort. Another factor that influence behavioral intention is social influence. The payment provider could take benefit of social influence by involving in marketing campaigns with opinion leaders, with the goal of creating a snowball effect that results in a more positive perception of technology.

Perceived susceptibility influence the intention to use QR code payment. The use of QR payment reduces the likelihood of coming into direct contact with people or objects. Staying away from direct contact is one of the major preventive measures to stop the spread of covid-19. And service providers should investigate appropriate market segment to identify consumers' perceived susceptibility level.

The policymakers should address the health benefit of using QR code payment. They are recommended to launch campaigns on behaviors that can minimize the risk of contracting the virus. The behaviors should include the use of QR payment.

The mobile payment sector in Nepal is in its early stages. To develop this sector, more investment and appropriate legislation are required. It is also crucial to educate the public about the use of contactless payments.

5.3.2 Implication for Further Studies

The present study evaluated the intention to use QR code payment by integrating HBM and UTAUT model. The future studies can address in the present studies limitations. The following are the implications for the further studies:

- This sample for this study was taken only from Bagmati state. So the future studies could take sample from all over Nepal

- The R-square for this study is 0.663 which indicates there are some other remaining factors not explained in this model. Hence the others factors like hedonic factors should be explored in future studies

- UTAUT and HBM are the only two theories this study is based on. Other theories like TRA, TPB, UTAUT2 and son on can also be used in order to build the new framework.

- This study has employed convenience sampling techniques to measure the influence on behavioral intention to use QR payment. Future study can be conducted by using probability sampling techniques as findings from this techniques can be generalized effectively.

- This study have not included the moderating variables. Future studies are recommended to use some of the demographic variables as a moderating variables.

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APPENDIX

Dear Respondents,

This study entitled "Contactless payments in the era of COVID-19: Behavioral intentions to use QR Code payment in Bagmati state" is a Graduate Research Project as a partial fulfillment of the requirement for the Masters in Business Administration(MBA) at School of Management, Tribhuvan University. The major objective of the study is to evaluate the factors influencing behavioral intentions to use QR Code payment services during the pandemic COVID-19.

The researcher would like to make a humble request to you to spare 4-5 minutes of your time to fill up the questionnaire with honesty. Your authentic responses will have an impact on the result of the study. Your information will be kept confidential and will solely be used for the purpose of the study. So, you are suggested to fill the questionnaire with your own conscience as you fill right.

In case of any queries or feedback, please feel free to contact the researcher in the address below!

Thank you for your valuable time.

Sincerely,
Srijan Lamichhane
MBA Research Scholar
School of Management, Tribhuvan University

A. Demographic Questions

1. Gender
   Mark only one

   ☐ Male

   ☐ Female

   ☐ Others

2. Age
   Mark only one

   ☐ 18-25

   ☐ 26-35

   ☐ 36 - 45

   ☐ 46 and above

3. Education:
   Mark only one

   ☐ SEE or below

   ☐ Intermediate

   ☐ Bachelors

   ☐ Masters and above

4. Occupation:
   Mark only one

   ☐ Student

   ☐ Employee

   ☐ Self Employed

   ☐ House Wife

   ☐ Other

5. Income
   Mark only one

   ☐ Below 20,000

   ☐ Rs 20,000 – 30,000

   ☐ Rs 30,001 – 40,000

   ☐ Rs 40,001 – 50,000

   ☐ Above 50,000

6. During the Covid-19 pandemic, have you ever used QR code Payment?
   Mark only one

   ☐ Yes

   ☐ No

7. If yes, which of the following mode of QR do you use often?
   Check all that apply

   ☐ Fonepay

   ☐ Esewa

   ☐ Khalti

   ☐ PrabhuPay

   ☐ ImePay

   ☐ ConnectIPS

☐ Others

8. How often do you use QR code payment?
   Mark only one

   ☐ Very frequently

   ☐ Frequently

   ☐ Occasionally

   ☐ Rarely

9. What is your main purpose of using QR?
   Check all that apply

   ☐ Utilities Bill Payment

   ☐ Fund Transfer

   ☐ Entertainment

   ☐ Online Shopping Payment

   ☐ Others

B. Likert Scale Questions

Social Influence (SI)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
People who influence my behavior think that I should use QR payment during Covid-19 pandemic.	20	44	93	169	60
People whose opinions I value prefer that I use QR payment during Covid-19 pandemic.	21	43	82	179	61
People close to me already use QR payment	14	45	50	167	110
People who are important to me think it is a good idea to use QR-payments during the Covid-19 pandemic	19	22	59	199	87

Performance expectancy (PE)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
QR-code mobile payment is useful way of making payment	18	17	38	192	121
QR-code mobile payment enable me to complete payment more quickly	18	23	32	163	150
QR-code mobile payment make it easier for me to make payment	14	19	43	149	161
QR-code mobile payment is reliable	17	31	67	144	127

Effort Expectancy (EE)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
It is easy for me to become skilful at using QR payment.	18	19	35	176	138
I find QR-payment easy to use.	13	20	30	144	179
The interaction with QR payment services is clear and understandable	17	23	41	171	134
Learning how to use QR payment services is easy.	14	23	28	157	164

Facilitating Conditions (FC)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I have the resources necessary to use QR-code mobile payment (e.g.	19	32	35	153	147

smartphones, internet services, and secured applications).					
I have the knowledge necessary to use QR- code mobile payment.	12	19	36	173	146
I can get help from others when I have difficulties using QR-code mobile payment.	10	37	74	175	90
QR-code mobile payment is compatible with other technologies I use.	9	23	74	179	101
There are online resources to show me how to use QR payment.	18	32	56	172	108

Perceived susceptibility (PS)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
There is a possibility to get infected by Covid-19 due to using cash or physical contact payment tools	18	34	46	178	110
I would say that I am the type of person who is likely to be infected by Covid-19	44	71	100	118	53
I have a strong possibility of being infected by Covid-19 due to my daily habits	39	79	95	114	59
It is most likely that I will be infected by Covid-19 in my lifetime	29	56	96	150	55

Perceived severity (PST)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)

Statement					
The negative impacts of Covid-19 are severe.	13	27	78	163	105
Thinking about getting infected by Covid-19 makes me nervous.	15	56	93	152	70
Covid-19 has become a serious threat for humankind	13	39	50	187	97
It would be severe if I suffered from Covi-19 through physical contact.	15	52	85	16	66

Behavioral intention (BI)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I intend to increase the use of QR code mobile payment in the future.	19	26	28	154	159
I plan to use QR code mobile payment when the opportunities arise.	14	28	36	155	153
I would like to use QR code mobile payment for purchasing instead of traditional payment methods. (e.g. Cash)	17	24	49	151	145
I plan to use the QR code mobile payment frequently	12	28	35	166	145
I will strongly recommend to others to use QR code mobile payment.	14	23	46	152	151

Thank you!